

Appl. No. 09/035,932
Arndt, Dated June 18, 2004
Reply to Office action of March 24, 2004

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (currently amended): A method of making a web of conductive filler, comprising the steps of:
 - 3 placing a core material onto an interior surface of a web of conductive layer material comprised substantially of including substantially non-conductive fibers;
 - 4 and
 - 7 turning first and second edges of the conductive layer material upward, folding the first edge of the conductive layer material over the core material,
 - 8 and folding the second edge of the conductive layer material over the first edge of conductive layer material.
- 1 2. (original): The method according to claim 1, further comprising the step of placing a web of adhesive layer material onto the interior surface of the web of conductive layer material.
- 1 3. (previously presented) The method according to claim 2 wherein said web of conductive layer includes the substantially non-conductive fibers impregnated with a conductive resin.
- 1 4. (currently amended): The method according to claim 1, further comprising the step of placing a web of adhesive layer material onto the ~~exterior~~ surface interior of the web of conductive layer material.
- 1 5. (previously presented) The method according to claim 1 wherein said web of conductive layer includes the

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3 substantially non-conductive fibers impregnated with a
4 conductive resin.

1 6. (currently amended): A method for making a conductive
2 filler material comprising the steps of:

3 selecting a web of conductive layer material comprised
4 substantially of non-conductive fibers; said web of
5 conductive layer material having an interior surface
6 and an exterior surface;
7 positioning a web of non-conducting core material onto
8 said interior surface of said web of conductive
9 layer material;
10 folding said web of conductive layer material around said
11 web of non-conducting core material, wherein said
12 web of conductive layer material is completely
13 wrapped around said web of non-conducting core
14 material; and
15 pressing said web of non-conducting core material wrapped
16 with said web of conductive layer material by
17 passing through a pair of rollers to form said
18 conductive filler.

1 7. (previously presented): The method according to claim
2 6, wherein said web of conductive layer material includes
3 substantially non-conductive fibers impregnated with a
4 conductive resin.

1 8. (original): The method according to claim 7, wherein
2 said web of conductive layer material is folded around said
3 web of non-conducting core material such that said web of
4 conductive layer material overlaps itself on one side of said
5 web of non-conducting core material, thereby forming a
6 laminated layer of said web of conductive layer material.

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1 9. (original): The method according to claim 6, wherein
2 said web of conductive layer material is folded around said
3 web of non-conducting core material such that said web of
4 conductive layer material overlaps itself on one side of said
5 web of non-conducting core material, thereby forming a
6 laminated layer of said web of conductive layer material.

1 10. (currently amended): A method for making a conductive
2 filler material in a continuous process comprising the steps
3 of:

4 selecting a web of conductive material, said web of
5 conductive material having an interior surface and
6 an exterior surface, with said interior surface
7 including a first edge and a second edge;
8 selecting a first adhesive web;
9 selecting a second adhesive web;
10 positioning said first adhesive web on said first edge of
11 said web of conductive material;
12 positioning said second adhesive web on said second edge
13 of said web of conductive material;
14 selecting a web of a non-conducting core material;
15 positioning said web of non-conducting core material onto
16 said interior surface of said web of conductive
17 material between said first and said second adhesive
18 webs;
19 folding said web of conductive material with said first
20 and said second adhesive webs thereon around said
21 web of non-conducting core material, wherein said
22 web of conductive material is completely wrapped
23 around said web of non-conducting core material; and
24 pressing said said web of conductive material with said
25 first and said second adhesive webs thereon folded
26 around said web of non-conducting core material by

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27 passing through a pair of rollers to form said
28 conductive filler.

1 11. (previously presented): The method according to claim
2 10, wherein said web of conductive material includes
3 substantially non-conductive fibers impregnated with a
4 conductive resin.

1 12. (original): The method according to claim 11, wherein
2 said web of conductive material is folded around said web of
3 non-conducting core such that said web of conductive material
4 overlaps itself on one side of said web of non-conducting core
5 material, and further wherein one of said first and said
6 second adhesive webs is against a top surface of said web of
7 non-conducting core material and the other of said first and
8 said second adhesive webs is against said exterior surface of
9 said web of conductive material, thereby forming a conductive
10 filler having a laminated layer of said conductive material.

1 13. (original): The method for making a conductive filler
2 material of claim 10, wherein said web of conductive material
3 is folded around said web of non-conducting core such that
4 said web of conductive material overlaps itself on one side of
5 said web of non-conducting core, and further wherein one of
6 said first and said second adhesive webs is against a top
7 surface of said web of non-conducting core material and the
8 other of said first and said second adhesive webs is against
9 said exterior surface of said web of conductive material,
10 thereby forming a conductive filler having a laminated layer
11 of said conductive material.

1 14. (previously presented): A method for making a
2 conductive filler material comprising the steps of:

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3 selecting a web of conductive material, said conductive
4 material including substantially non-conductive
5 fibers impregnated with a conductive resin; said web
6 of conductive material having an interior surface
7 and an exterior surface;
8 selecting a first adhesive web having a first side and a
9 second side, said first side of said first adhesive
10 web covered by a first release liner;
11 selecting a second adhesive web having a first side and a
12 second side, said first side of said second adhesive
13 web covered by a second release liner;
14 positioning said first adhesive web covered by said first
15 release liner on said first edge of said web of
16 conductive material, wherein said second side of
17 said first adhesive web is in contact with said
18 interior surface of said web of conductive material;
19 positioning said second adhesive web covered by said
20 second release liner on said second edge of said web
21 of conductive material, wherein said second side of
22 said second adhesive web is in contact with said
23 interior surface of said web of conductive material;
24 pressing to secure said first adhesive web and said
25 second adhesive web to said web of conductive
26 material, wherein said pressing is done by passing
27 said web of conductive material with said adhesive
28 webs thereon through a first pair of rollers;
29 removing said first release liner from said first
30 adhesive web;
31 removing said second release liner from said second
32 adhesive web;
33 selecting a web of non-conducting core material including
34 non-woven fibers impregnated with a resin;
35 positioning said web of non-conducting core material onto
36 said interior surface of said web of conductive

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37 material between said first and said second adhesive
38 webs;
39 folding said web of conductive material with said first
40 and said second adhesive webs thereon around said
41 web of non-conducting core material at a forming
42 station by upwardly bending or folding said web of
43 conductive material to form an unfinished filler;
44 and
45 pressing said unfinished filler by passing said
46 unfinished filler through said second pair of
47 rollers, wherein sufficient pressure is applied by
48 said pressing to secure said second side of said
49 outer adhesive web to said center portion of said
50 top surface of said unfinished filler, thereby
51 forming said conductive filler[;].

1 15. (previously presented): The method for making a
2 conductive filler material of claim 14, wherein said web of
3 conductive material is folded around said web of non-
4 conducting core such that one of said first and said second
5 adhesive webs is against a surface of said web of non-
6 conducting core material and the other of said first and said
7 second adhesive webs is against said exterior surface of said
8 web of conductive material, said bending or folding forming a
9 laminated layer of said web of conductive material, wherein
10 said web of conductive material is completely wrapped around
11 said web of non-conducting core material, thereby forming said
12 unfinished filler having said laminated layer of said
13 conductive material, said method thereby resulting in a
14 conductive filler having said laminated layer of said
15 conductive material.

1 16. (original): The method according to claim 14, further
2 comprising the steps of:

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3 selecting an outer adhesive web having a first side and a
4 second side, said first side of said outer adhesive
5 web covered by an outer release liner; and
6 directing said outer adhesive web with said outer release
7 liner onto a center portion of said top surface of
8 said unfinished filler, and then completing the step
9 directing said unfinished filler toward said second
10 pair of rollers.

1 17. (previously presented): The method for making a
2 conductive filler material of claim 14 , wherein said web of
3 conductive material is folded around said web of non-
4 conducting core such that one of said first and said second
5 adhesive webs is against a top surface of said web of non-
6 conducting core material and the other of said first and said
7 second adhesive webs is against said exterior surface of said
8 web of conductive material, said bending or folding forming a
9 laminated layer of said web of conductive material, wherein
10 said web of conductive material is completely wrapped around
11 said web of non-conducting core material, thereby forming the
12 unfinished filler with a top surface having with said
13 laminated layer of said conductive material, said method
14 thereby resulting in a conductive filler with a top surface
15 having said laminated layer of said conductive material.

1 18. (currently amended): A method for making a conductive
2 filler material comprising the steps of:

3 [[F]] feeding a web of conductive material from a roll of
4 said web of conductive material at a first unwind
5 station, said conductive material including
6 substantially non-conductive fibers impregnated with
7 a conductive resin; said web of conductive material
8 having an interior surface and an exterior surface,

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9 with said interior surface including a first edge
10 and a second edge;
11 directing said web of conductive material to a second
12 unwind station having a first and a second roll of
13 adhesive material, wherein said first roll of
14 adhesive material includes a first adhesive web
15 having a first side and a second side, said first
16 side of said first adhesive web covered by a first
17 release liner, and further wherein said second roll
18 of adhesive material includes a second adhesive web
19 having a first side and a second side, said first
20 side of said second adhesive web covered by a second
21 release liner;
22 unwinding and positioning said first adhesive web covered
23 by said first release liner on said first edge of
24 said web of conductive material, wherein said second
25 side of said first adhesive web is in contact with
26 said interior surface of said web of conductive
27 material;
28 unwinding and positioning said second adhesive web
29 covered by said second release liner on said second
30 edge of said web of conductive material, wherein
31 said second side of said second adhesive web is in
32 contact with said interior surface of said web of
33 conductive material;
34 directing said web of conductive material with both said
35 first adhesive web with said first release liner and
36 said second adhesive web with said second release
37 liner thereon toward a first pair of rollers;
38 pressing to secure said first adhesive web and said
39 second adhesive web to said web of conductive
40 material, wherein said pressing is done by passing
41 said web of conductive material with said adhesive
42 webs thereon through said first pair of rollers;

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43 removing said first release liner from said first
44 adhesive web by using a first liner collector;
45 removing said second release liner from said second
46 adhesive web by using one of said first liner
47 collector and a second liner collector;
48 directing said web of conductive material with both said
49 first and said second adhesive webs thereon to a
50 third unwind station containing a roll of a web of a
51 non-conducting core material, said web of non-
52 conducting core material including non-woven fibers
53 impregnated with a resin;
54 feeding and positioning said web of non-conducting core
55 material onto said interior surface of said web of
56 conductive material between said first and said
57 second adhesive webs;
58 directing said web of conductive material with both said
59 first and said second adhesive webs thereon and also
60 with said web of non-conducting core material
61 thereon, to a forming station;
62 folding said web of conductive material with said first
63 and said second adhesive webs thereon around said
64 web of non-conducting core material by upwardly
65 bending or folding said web of conductive material,
66 wherein one of said first and said second adhesive
67 webs is against a top surface of said web of non-
68 conducting core material and the other of said first
69 and said second adhesive webs is against said
70 exterior surface of said web of conductive material,
71 said bending or folding forming a laminated layer of
72 said web of conductive material, wherein said web of
73 conductive material is completely wrapped around
74 said web of non-conducting core material, thereby
75 forming an unfinished filler with a top surface

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76 having said laminated layer of said conductive
77 material;
78 directing said unfinished filler toward a second pair of
79 rollers; and
80 pressing said unfinished filler by passing said
81 unfinished filler through said second pair of
82 rollers, wherein sufficient pressure is applied by
83 said pressing to secure said second side of said
84 outer adhesive web to said center portion of said
85 top surface of said unfinished filler, thereby
86 forming said conductive filler.

1 19. (original): The method according to claim 18, further
2 comprising the steps of:

3 before directing said unfinished filler toward said
4 second pair of rollers, directing said unfinished
5 filler material toward a fourth unwind station
6 containing a third roll of adhesive material
7 containing an outer adhesive web having a first side
8 and a second side, said first side of said outer
9 adhesive web covered by an outer release liner; and
10 unwinding and directing said outer adhesive web with said
11 outer release liner onto a center portion of said
12 top surface of said unfinished filler, and then
13 completing the step directing said unfinished filler
14 toward said second pair of rollers.

1 20. (original): The method according to claim 19, further
2 comprising the steps of:

3 directing said conductive filler toward a rewind station;
4 and
5 winding said conductive filler onto a rewind roll using
6 said rewind station, wherein said conductive filler
7 can then be packaged and shipped to a destination.

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1 21. (previously presented): A method for making a
2 conductive bar comprising the steps of:
3 selecting a web of conductive material, said conductive
4 material including substantially non-conductive
5 fibers impregnated with a conductive resin; said web
6 of conductive material having an interior surface
7 and an exterior surface, said interior surface
8 including a first edge and a second edge;
9 selecting a first adhesive web having a first side and a
10 second side, said first side of said first adhesive
11 web covered by a first release liner;
12 selecting a second adhesive web having a first side and a
13 second side, said first side of said second adhesive
14 web covered by a second release liner;
15 positioning said first adhesive web covered by said first
16 release liner on said first edge of said web of
17 conductive material, wherein said second side of
18 said first adhesive web is in contact with said
19 interior surface of said web of conductive material;
20 positioning said second adhesive web covered by said
21 second release liner on said second edge of said web
22 of conductive material, wherein said second side of
23 said second adhesive web is in contact with said
24 interior surface of said web of conductive material;
25 pressing to secure said first adhesive web and said
26 second adhesive web to said web of conductive
27 material, wherein said pressing is done by passing
28 said web of conductive material with said adhesive
29 webs thereon through a first pair of rollers;
30 removing said first release liner from said first
31 adhesive web;
32 removing said second release liner from said second
33 adhesive web;

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34 selecting a web of a non-conducting core material, said
35 web of non-conducting core material including non-
36 woven fibers impregnated with a resin;
37 positioning said web of non-conducting core material onto
38 said interior surface of said web of conductive
39 material between said first and said second adhesive
40 webs;
41 folding said web of conductive material with both said
42 first and said second adhesive webs thereon around
43 said web of non-conducting core material at a
44 forming station by upwardly bending or folding said
45 web of conductive material, wherein one of said
46 first and said second adhesive webs is against a
47 surface of said web of non-conducting core material
48 and the other of said first and said second adhesive
49 webs is against said exterior surface of said web of
50 conductive material, said bending or folding forming
51 a laminated layer of said web of conductive
52 material, wherein said web of conductive material is
53 completely wrapped around said web of non-conducting
54 core material, thereby forming an unfinished filler
55 having said laminated layer of said conductive
56 material;
57 selecting an outer adhesive web having a first side and a
58 second side, said first side of said outer adhesive
59 web covered by an outer release liner;
60 directing said outer adhesive web with said outer release
61 liner onto a center portion of said top surface of
62 said unfinished filler;
63 pressing said unfinished filler by passing said
64 unfinished filler through a second pair of rollers,
65 wherein sufficient pressure is applied by said
66 pressing to secure said second side of said outer
67 adhesive web to said center portion of said top

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68 surface of said unfinished filler, thereby forming
69 said conductive filler;
70 placing said conductive filler at a top and a bottom of a
71 stack of windings;
72 wrapping an insulating groundwall around said conductive
73 filler with said stack of windings; and
74 forming said conductive bar by sealing said insulating
75 groundwall.

1 22. (withdrawn) : A forming station for making a web of
2 conductive filler, the conductive filler having a web of
3 conductive material material wrapped around a web of core
4 material, comprising:

5 a die having a U-shaped passageway through which the web
6 of the conductive layer material and the web of core
7 material are passed, the die turning first and
8 second edges of the conductive layer material
9 upward;

10 a first barrier, the first barrier folding the first edge
11 of conductive layer material on top of the core
12 material; and

13 a second barrier, the second barrier folding the second
14 edge of conductive layer material on top of the core
15 material.

1 23. (withdrawn) : The forming station according to claim
2 22 wherein said web of conductive layer material includes a
3 substantially non-conductive fiber impregnated with a
4 conductive resin.

1 24. (currently amended) : A method of making a conductive
2 filler, comprising the steps of:
3 wrapping a web of conductive material including
4 substantially non-conductive fibers impregnated with

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5 a conductive resin around a core material, wherein
6 an adhesive is between and in contact with at least
7 a portion of the core material and the web of
8 conductive material; and
9 pressing said web of conductive material wrapped around
10 said web of core material to form said conductive
11 filler.

1 25. (previously presented) A method for making a
2 conductive bar comprising the steps of:

3 placing a conductive filler made as defined in claim 24
4 at a top and a bottom of a stack of windings;
5 wrapping an insulating groundwall around said conductive
6 filler with said stack of windings; and
7 forming said conductive bar by sealing said insulating
8 groundwall.

1 26. (previously presented) A method for making a
2 conductive bar comprising the steps of:

3 placing a conductive filler made as defined in claim 1 at
4 a top and a bottom of a stack of windings;
5 wrapping an insulating groundwall around said conductive
6 filler with said stack of windings; and
7 forming said conductive bar by sealing said insulating
8 groundwall.